Chassis Inventory using the Dell OpenManage Integration for VMware vCenter

How to configure and view Dell chassis inventory and health information from within the VMware vCenter Web Client using the OpenManage Integration for VMware vCenter

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Executive summary

The OpenManage Integration for VMware vCenter provides value to IT administrators by surfacing hardware inventory and health information in the single pane of glass that they use for their daily virtualization management tasks. Instead of logging in to the chassis management console (CMC), important information is now easily obtained when using the VMware vSphere Web Client. The integration also enables a new set of alerts that are registered with the VMware vCenter.

Introduction

The purpose of this white paper is to provide information about monitoring a chassis by Dell OpenManage Integration for VMware vCenter, instructions on creating a chassis profile, and additional information about the integration points for displaying health and inventory information presented by the integration.

Objective

Using this whitepaper as a guide, the user should have a better understanding about the chassis discovery process and how to configure a chassis profile. With a chassis profile created, the user should be able to see inventory and health information about the managed chassis.

Prerequisites

The OpenManage Integration for VMware vCenter is designed to display chassis information within the VMware vSphere web client only. Chassis information is not available within the OpenManage Integration desktop client. Chassis information is only available for Dell 10th generation or latest blade servers and designed for the Dell M1000e and Dell VRTX blade chassis. The OpenManage Integration for VMware vCenter version 2.1 or later should be installed and configured as specified in the User's Guide.

If you want to view information about chassis and health in the VMware web client, the chassis must first be discovered and inventoried. The required configuration prerequisites to monitor the chassis from the web client are:

1. Discovery of the chassis by the OpenManage Integration for VMware vCenter
2. Adding the discovered chassis to a Chassis Profile
3. Inventory of the chassis

1 Chassis Discovery

Chassis Discovery is the term used when the Dell OpenManage Integration for VMware vCenter obtains information about the existence of a chassis.

1.1 Chassis discovered during host inventory

A chassis is discovered when a Dell 10th Generation or latest blade server configured as a VMware host is inventoried by the OpenManage Integration for VMware vCenter. The chassis for which the blade server belongs is identified, and during the host inventory process only basic information about the chassis is retrieved and stored.

NOTE: Discovered chassis information is visible from the integration in the VMware web client only.

In the vCenter Home context, the number of chassis is visible on the left hand navigation menu. The number of discovered chassis is displayed next to the "Dell Chassis" menu item.

Figure 1 Number of discovered chassis as displayed on the Dell chassis menu item

If you click on the "Dell Chassis" menu item, a list of the discovered chassis is displayed.

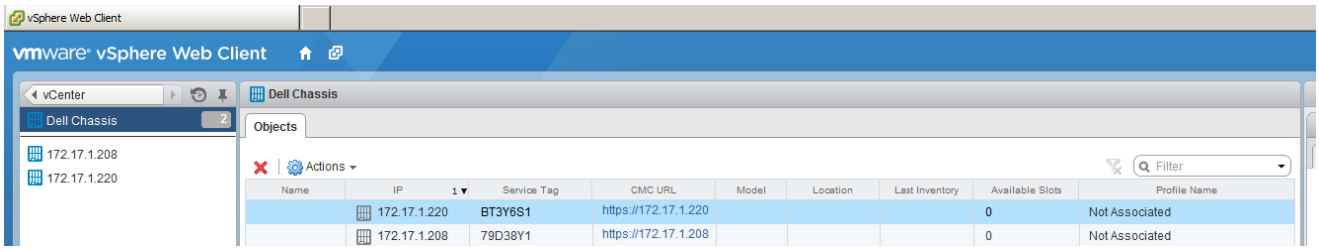


Figure 2 Dell Chassis objects with minimal information after discovery

After discovery, the minimal information about the objects available on the **Dell Chassis** page is:

- CMC IP address
- Service Tag
- CMC URL

After a chassis has been inventoried, additional information about the chassis and its components is displayed.

1.2 Removing a discovered chassis

If the hosts associated with a discovered chassis have been removed, the OpenManage Integration for VMware vCenter still knows about the chassis. If you no longer want to view the chassis information, you can remove the chassis from the **Actions** menu, under the **Objects** tab, on the **Dell Chassis** page or right-click on the chassis, and then select **Remove Chassis**.

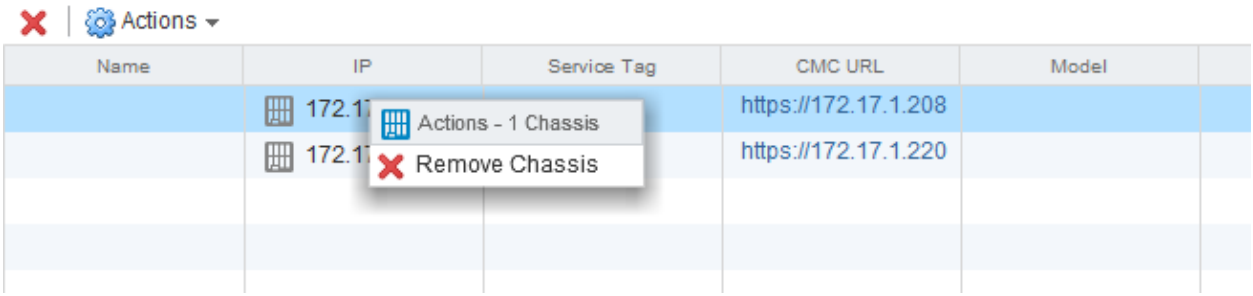


Figure 3 Removing a chassis using the right-click context menu

NOTE: If one or more hosts belonging to the chassis is assigned to a connection profile and inventoried as part of the host inventory process, the chassis reappears as a discovered chassis after the host inventory process completes.

2 Chassis Profile

A chassis profile is similar to a host connection profile, and used to associate one or more chassis with credentials that is used to access the CMC to obtain inventory and health information.

2.1 Creating a Chassis Profile

Use the **Home** icon or **Home** menu item in the VMware vSphere Web Client to access the **Home** page. Under **Administration**, click **OpenManage Integration**.

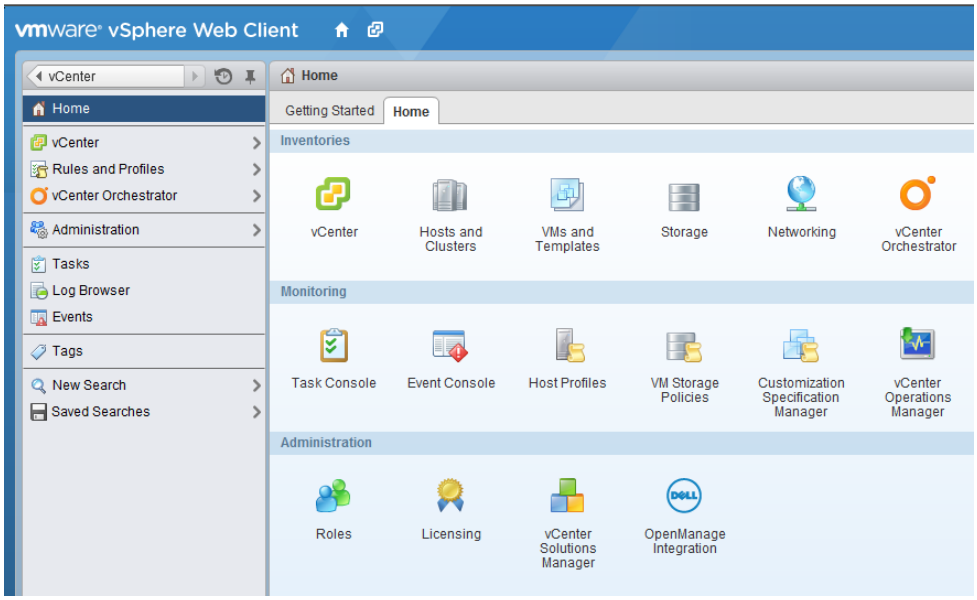


Figure 4 The OpenManage Integration icon in the Administration section on the Home page

The OpenManage Integration for VMware vCenter page opens and the following tabs are displayed: **Getting Started**; **Monitor**; **Manage**; **Licensing**; **Help** and **Support**.

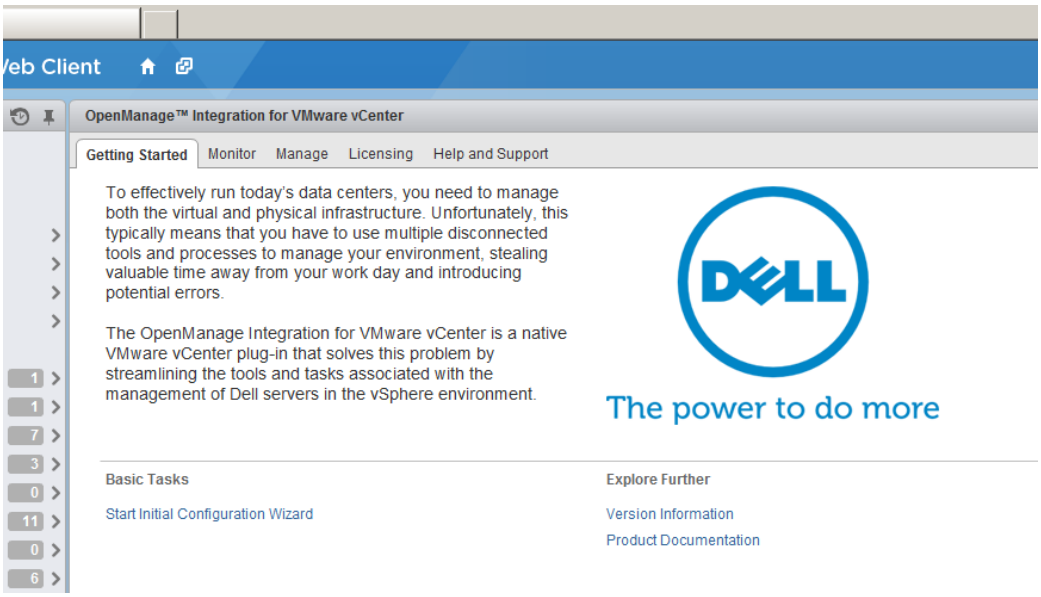

Web Client
OpenManage™ Integration for VMware vCenter
Getting Started
Monitor
Manage
Licensing
Help and Support
To effectively run today's data centers, you need to manage both the virtual and physical infrastructure. Unfortunately, this typically means that you have to use multiple disconnected tools and processes to manage your environment, stealing valuable time away from your work day and introducing potential errors.
The OpenManage Integration for VMware vCenter is a native VMware vCenter plug-in that solves this problem by streamlining the tools and tasks associated with the management of Dell servers in the vSphere environment.
The power to do more
Basic Tasks
Start Initial Configuration Wizard
Explore Further
Version Information
Product Documentation

Figure 5 The "Getting Started" tab

Creating a Chassis Profile is a management action. Click the **Manage** tab to open the **Manage** page. In the **Manage** tab, the **Profiles** and **Settings** buttons are displayed. Click the **Profiles** button.

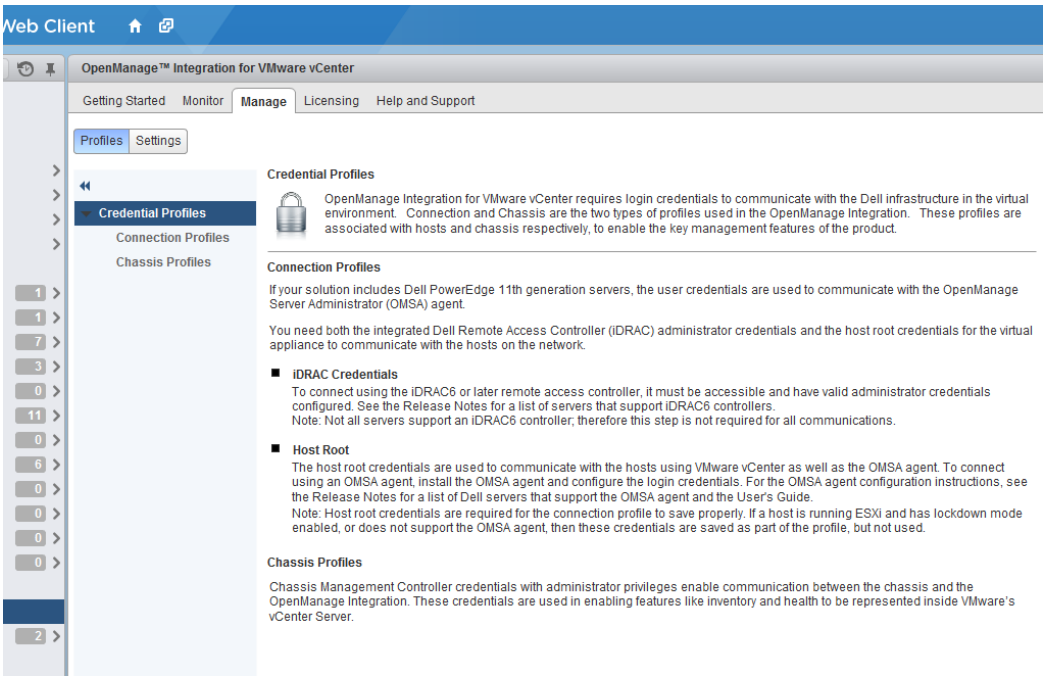

Web Client
OpenManage™ Integration for VMware vCenter
Getting Started
Monitor
Manage
Licensing
Help and Support
Profiles
Settings
Credential Profiles
Connection Profiles
Chassis Profiles
Credential Profiles
OpenManage Integration for VMware vCenter requires login credentials to communicate with the Dell infrastructure in the virtual environment. Connection and Chassis are the two types of profiles used in the OpenManage Integration. These profiles are associated with hosts and chassis respectively, to enable the key management features of the product.
Connection Profiles
If your solution includes Dell PowerEdge 11th generation servers, the user credentials are used to communicate with the OpenManage Server Administrator (OMSA) agent.
You need both the integrated Dell Remote Access Controller (iDRAC) administrator credentials and the host root credentials for the virtual appliance to communicate with the hosts on the network.
iDRAC Credentials
To connect using the iDRAC6 or later remote access controller, it must be accessible and have valid administrator credentials configured. See the Release Notes for a list of servers that support iDRAC6 controllers.
Note: Not all servers support an iDRAC6 controller; therefore this step is not required for all communications.
Host Root
The host root credentials are used to communicate with the hosts using VMware vCenter as well as the OMSA agent. To connect using an OMSA agent, install the OMSA agent and configure the login credentials. For the OMSA agent configuration instructions, see the Release Notes for a list of Dell servers that support the OMSA agent and the User's Guide.
Note: Host root credentials are required for the connection profile to save properly. If a host is running ESXi and has lockdown mode enabled, or does not support the OMSA agent, then these credentials are saved as part of the profile, but not used.
Chassis Profiles
Chassis Management Controller credentials with administrator privileges enable communication between the chassis and the OpenManage Integration. These credentials are used in enabling features like inventory and health to be represented inside VMware's vCenter Server.

Figure 6 The Connection Profiles menu option.

In the left pane, click **Credential Profiles** to expand the menu, and then click on the **Chassis Profile** option. The existing chassis profiles are displayed in the list.

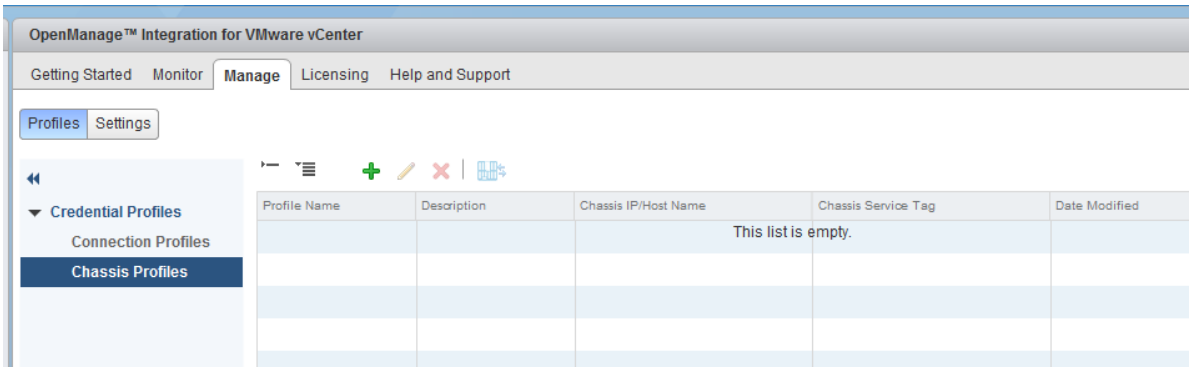


Figure 7 The Chassis Profiles menu option

If you click on the green plus sign in the action menu, a new Chassis Profile is created. A Chassis Profile Wizard is displayed and then type the required name and credentials to be used before continuing to the next step.

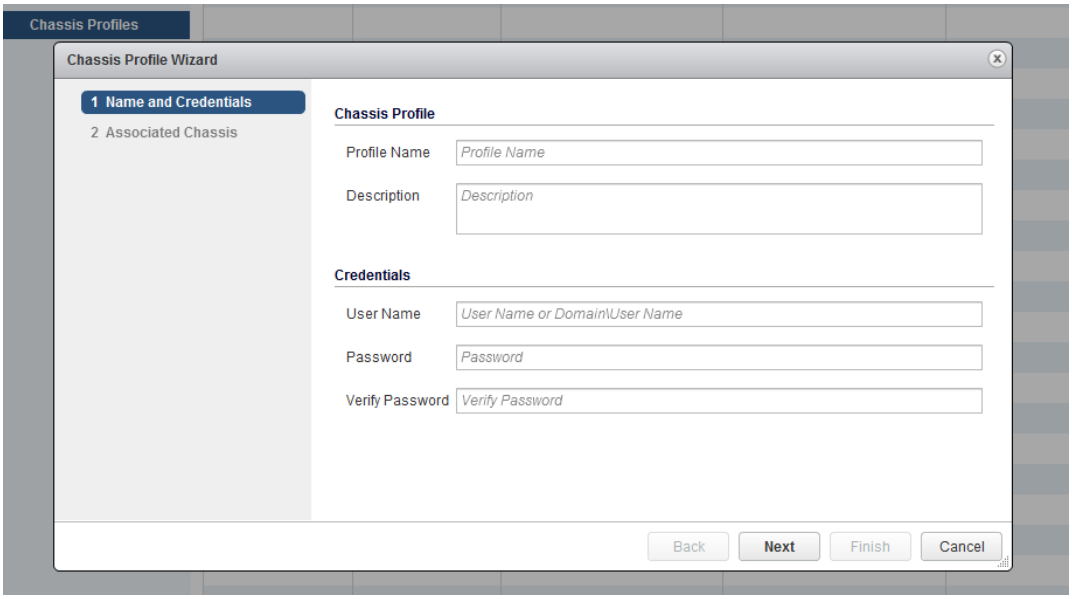


Figure 8 Step 1 of the Chassis Profile Wizard.

After typing the required information, click **Next**. A list of discovered chassis with checkboxes beside their IP is displayed. Use this page to select one or more chassis to associate with the chassis profile.

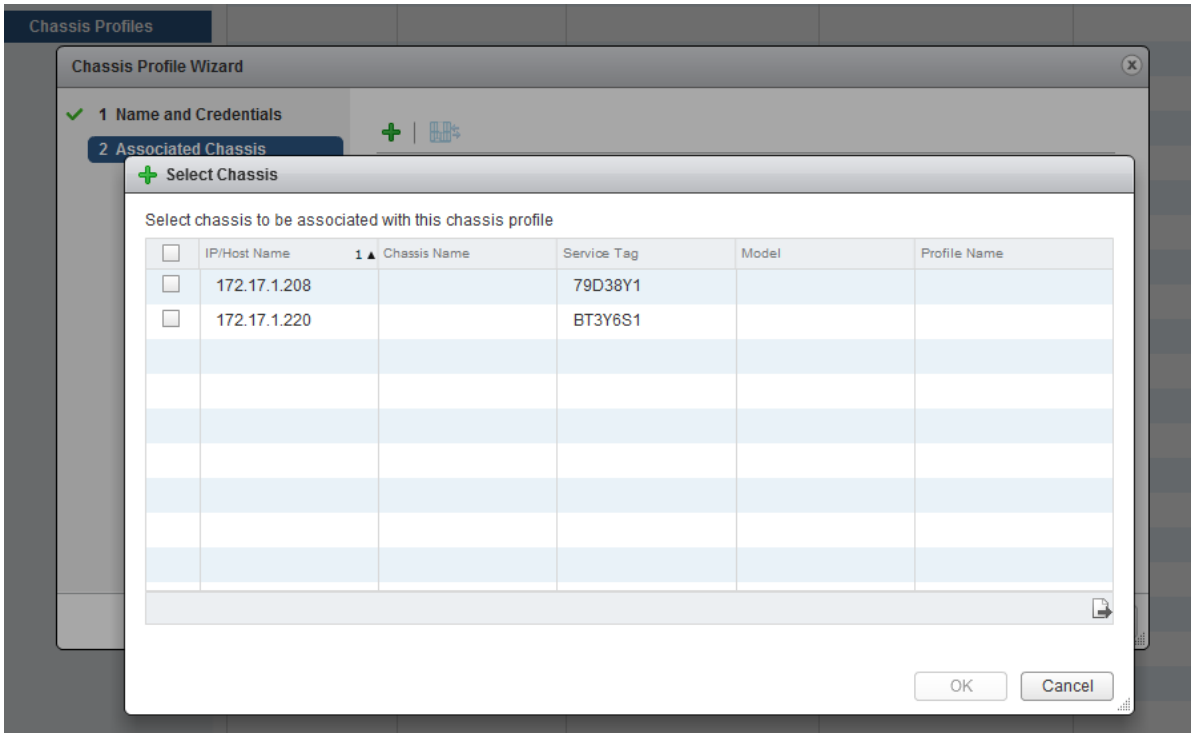


Figure 9 The Select Chassis page in the Chassis Profile wizard

After selecting the chassis to associate, the selected chassis is displayed in the **Associated Chassis** list. Click **Finish** to complete the wizard and save the chassis profile. A confirmation message is displayed.

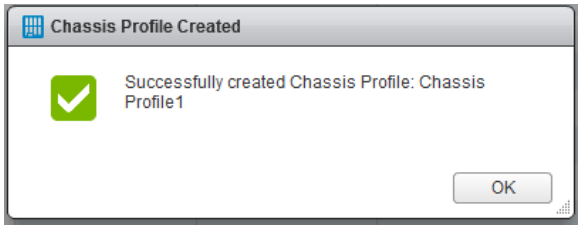


Figure 10 Chassis Profile Created confirmation message

2.2 Editing, Removing and Testing a Chassis Profile

A chassis profile can be edited by highlighting the chassis profile in the list, and clicking on the appropriate action item. The icons for the action items are greyed out if a chassis profile is not selected. The pencil icon is for editing, the red X for deleting, and the chassis icon with two arrows is used for testing the connectivity with the chassis using the credentials provided in the chassis profile.

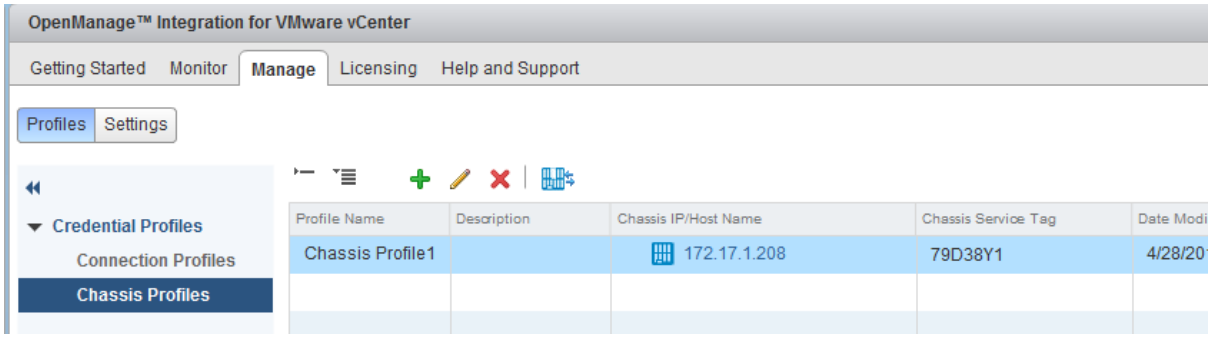


Figure 11 Highlighting a chassis enables the action item icons to edit, remove and test

3 Chassis Inventory and Health

Chassis inventory is the process of using the credentials in the Chassis Profile to obtain and store additional information about the chassis into the OpenManage Integration for VMware vCenter database. This inventory information is then available for use and is displayed on the various pages provided by the integration. A chassis inventory occurs after a chassis has been added to a chassis profile. Additionally, it is designed to run as part of a scheduled inventory process, or can be initiated on demand. Chassis health information is obtained on demand when a page is clicked. The page is not refreshed automatically. To get the latest data, a page refresh is required.

3.1 Scheduled Chassis Inventory

Chassis inventory does not have its own schedule. All chassis that are part of a chassis profile are inventoried immediately after the hosts for any vCenter are inventoried. You can adjust the host inventory schedule in the **Monitor** tab, on the **Job Queue**, and **Hosts Inventory history** pages. To adjust the inventory schedule, clicking on the calendar icon.

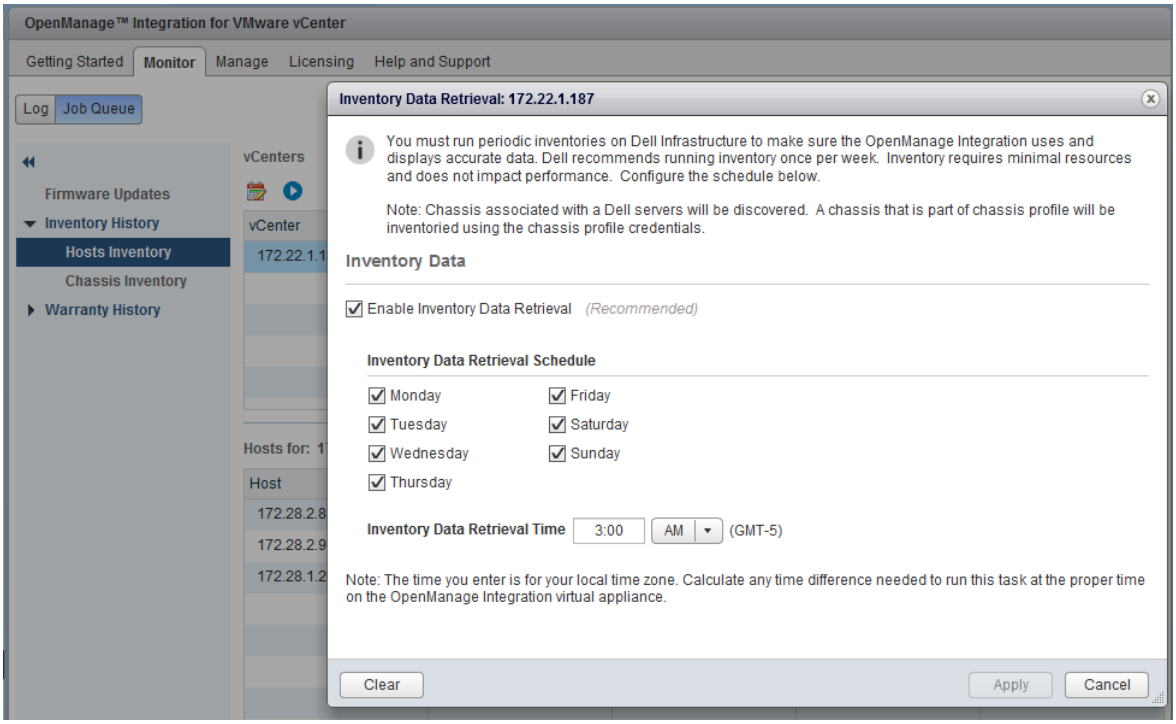


Figure 12 Adjusting the host inventory schedule on the Host Inventory history page.

3.2 Initiating a Chassis Inventory on Demand

A chassis inventory can be initiated on demand for all of the connection profiles. To perfom this task, click the **Monitor** tab, click the **Job Queue** button, in the left pane, click **Chassis Inventory,** and then click the

play icon. Additionally, the table displays information about the last inventory ran for each chassis that belongs to a chassis profile.

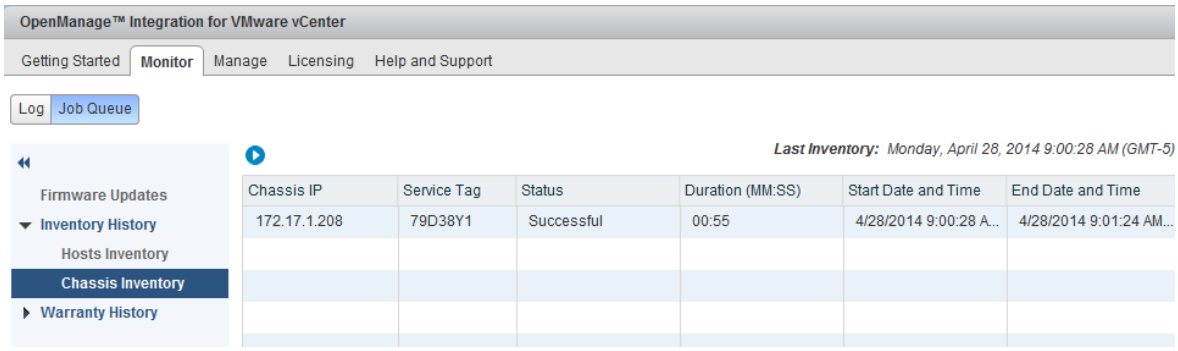


Figure 13 Chassis Inventory history page.

NOTE: A schedule icon is not available. Chassis inventory runs immediately after a scheduled host inventory.

3.3 Viewing Chassis Inventory and Health

After inventorying a chassis, additional information about the chassis is displayed in the Dell Chassis object list, and the chassis information pages are now populated with information.

3.3.1 Dell Chassis Object List

After a chassis has been inventoried, the following columns should contain information:

- Name
- CMC IP
- Service Tag
- CMC URL
- Model
- Location
- Last Inventory
- Available Slots
- Chassis Profile Name

A gray icon beside the value in the CMC IP column indicates that the chassis is not associated with a chassis profile.

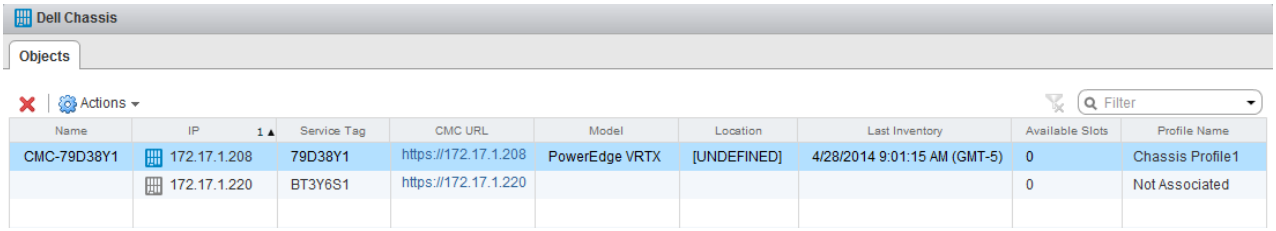


Figure 14 The dell chassis object list showing a chassis that has been inventoried

3.3.2 Chassis Summary Page

If you click or double-click on a chassis, the chassis information page for the selected chassis is opened. By default the **Summary** page is displayed, which contains an overview of health, licensing, and warranty information, followed by a list of any active errors. Further, after the active error, additional information about chassis health and the health of the components on the chassis is available.

The active errors provides more information about the health of the components and the reason why the component health is not okay. Active errors information is only available for M1000e chassis with firmware version 4.4 or later and VRTX chassis.

You can find a legend for the chassis health statuses in the bottom right corner on the **Summary** page:

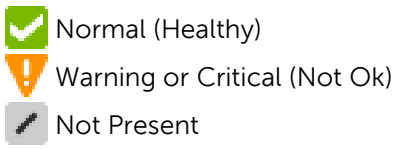


Figure 15 Legend for M1000e chassis with firmware version 4.3 and earlier

Figure 16 Legend for M1000e chassis with firmware version 4.4 and later and VRTX chassis

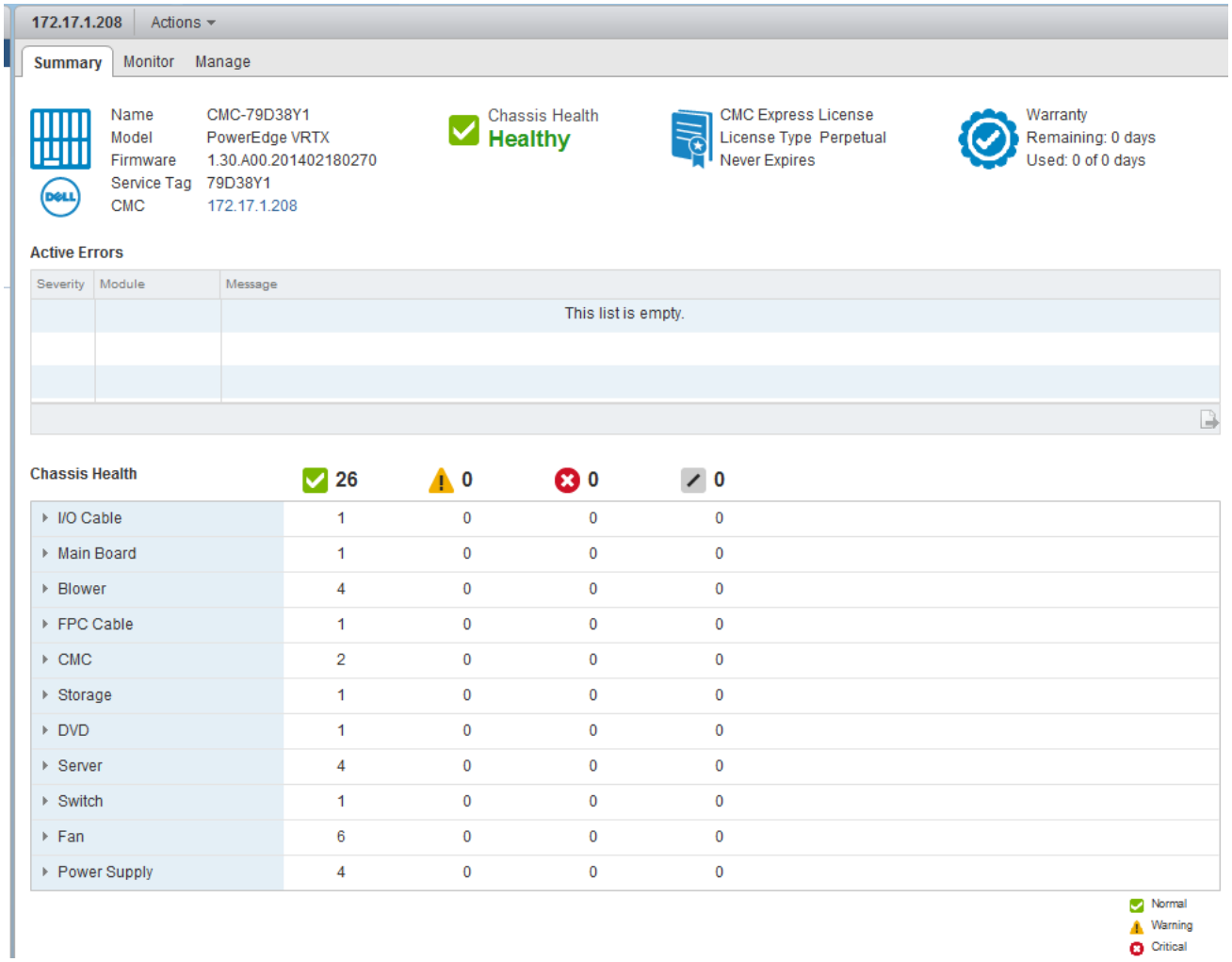
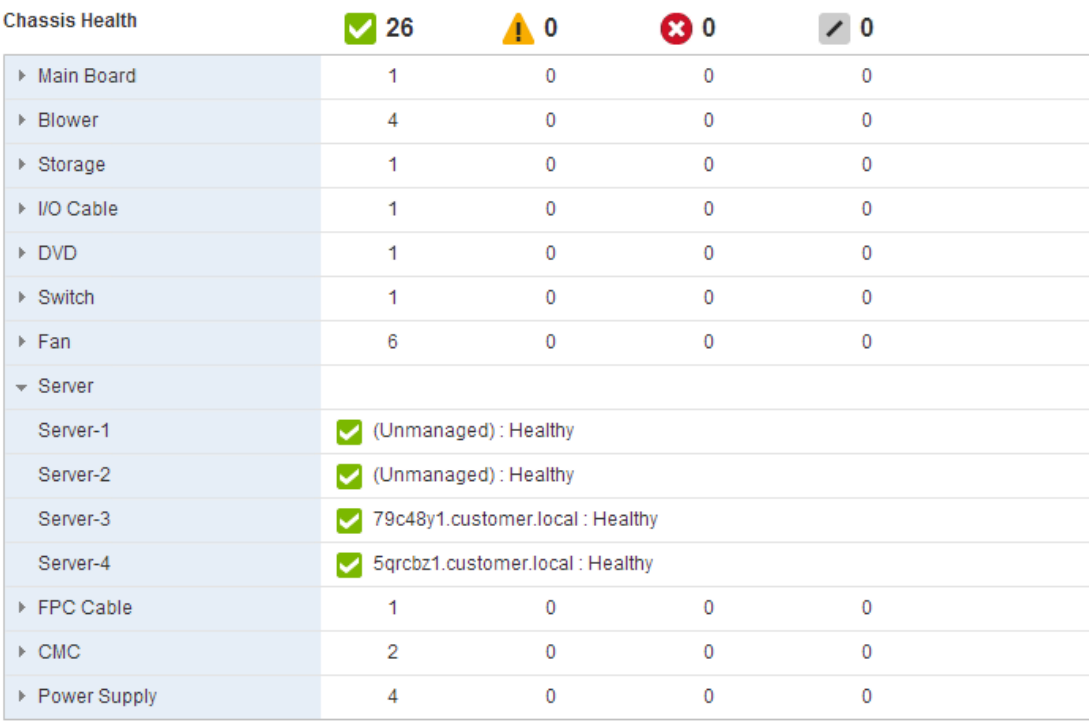


Figure 17 Chassis summary page



Chassis Health	26	0	0	0
Main Board	1	0	0	0
Blower	4	0	0	0
Storage	1	0	0	0
I/O Cable	1	0	0	0
DVD	1	0	0	0
Switch	1	0	0	0
Fan	6	0	0	0
Server				
Server-1	(Unmanaged) : Healthy			
Server-2	(Unmanaged) : Healthy			
Server-3	79c48y1.customer.local : Healthy			
Server-4	5qrcbz1.customer.local : Healthy			
FPC Cable	1	0	0	0
CMC	2	0	0	0
Power Supply	4	0	0	0

Figure 18 (Unmanaged) is displayed for hosts that have not been added to a connection profile within this vCenter

3.3.3 Chassis Information Page

If you click on the **Monitor** tab, the chassis information page is displayed. On this page, an overview of basic information about the chassis is displayed first. The left menu provides additional information about chassis components.

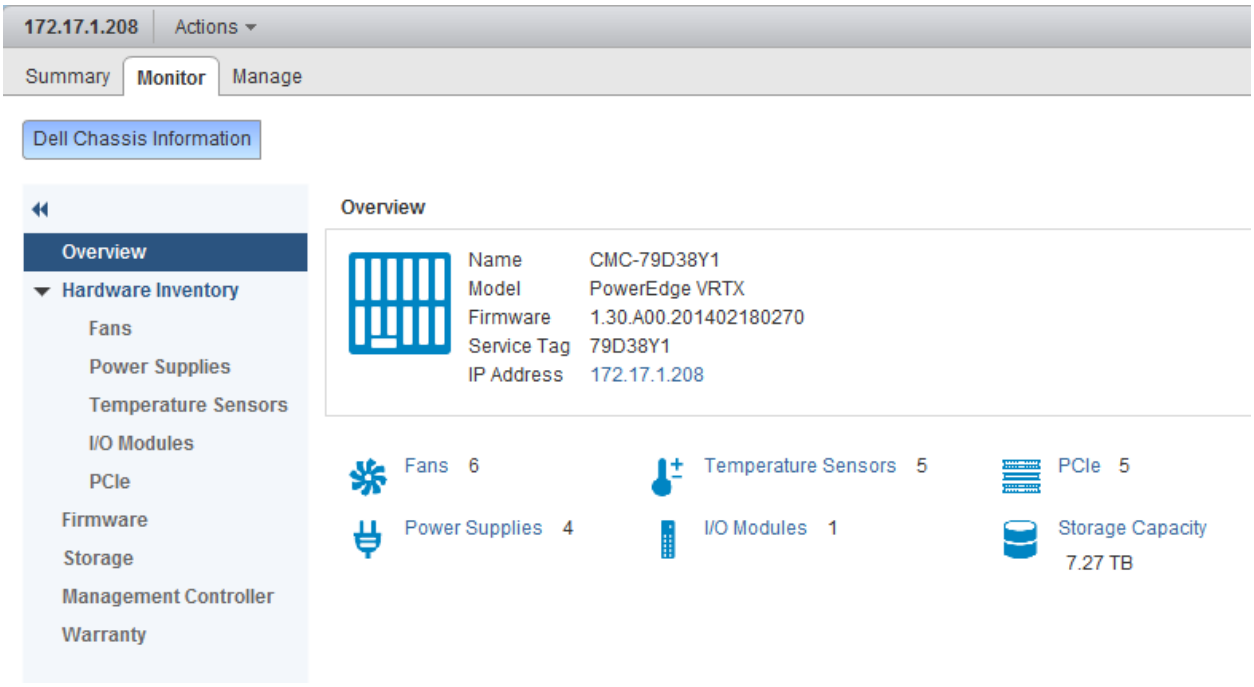


Figure 19 Chassis Information page, overview menu item.

Depending on the type of chassis, different information may be displayed in the hardware information. If the chassis is a Dell VRTX, storage and PCIe information is displayed. If the chassis is a M1000e and contains an Equallogic PS-M1xxx storage array, basic information about the array is displayed.

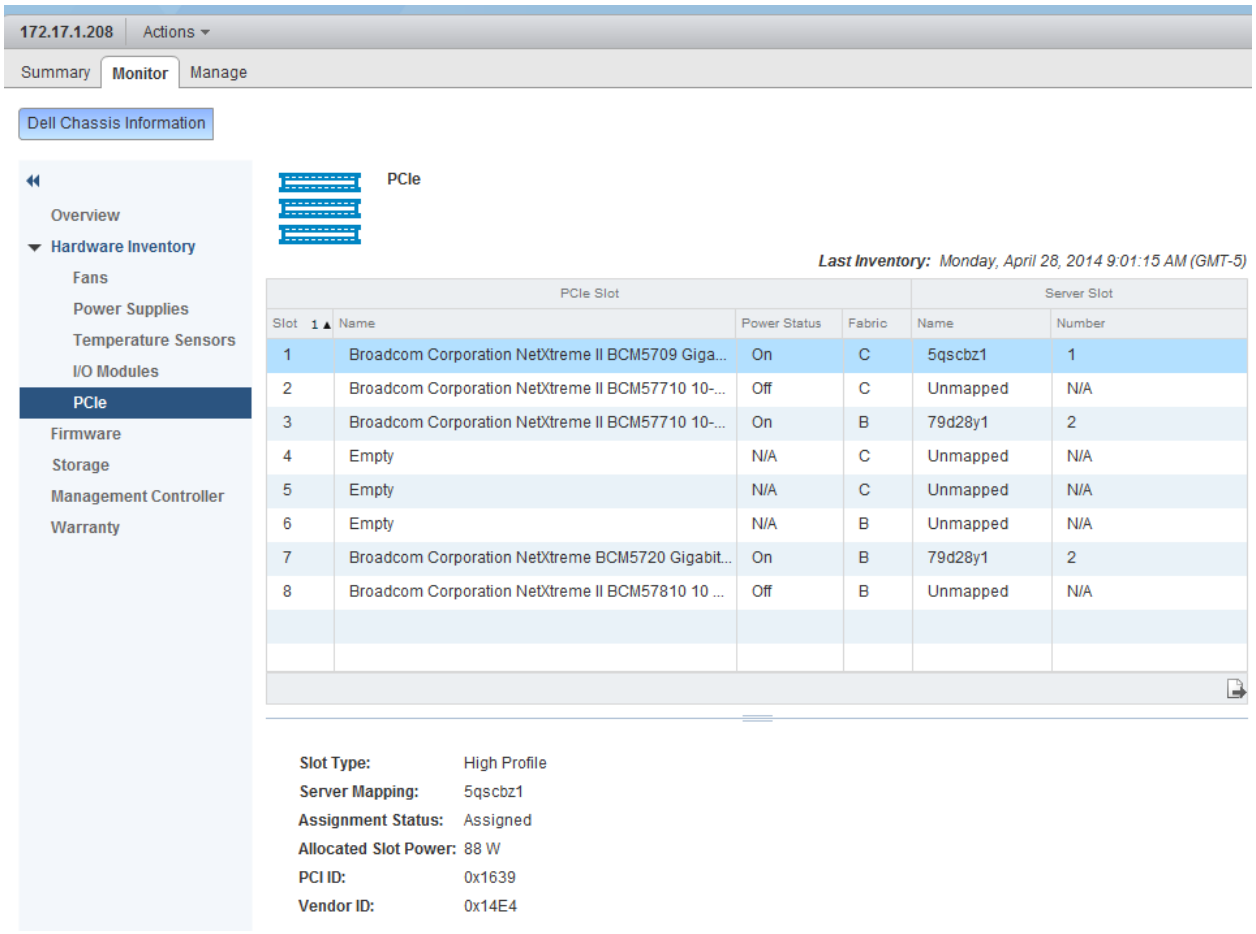


Figure 20 Chassis Information page, PCIe information

3.3.4 Hosts Associated with the Chassis

The **Manage** tab for a Dell chassis shows a list of Dell hosts that belong to the chassis. If you click on the IP address, the host in the web client is opened.

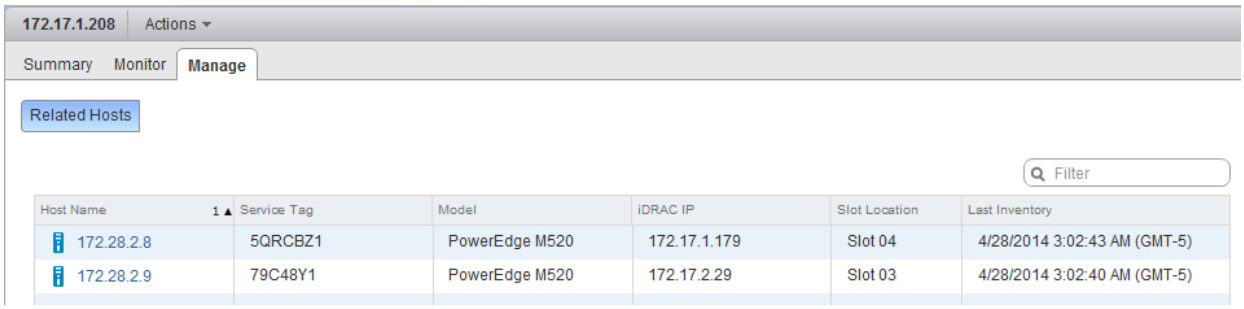


Figure 21 Chassis manage tab, related hosts

3.3.5 Host Health Summary Portlet

Status information about the Dell chassis health is now displayed for the associated hosts. The host **Summary** page has a Dell Host Health portlet that displays the Chassis Global Status.

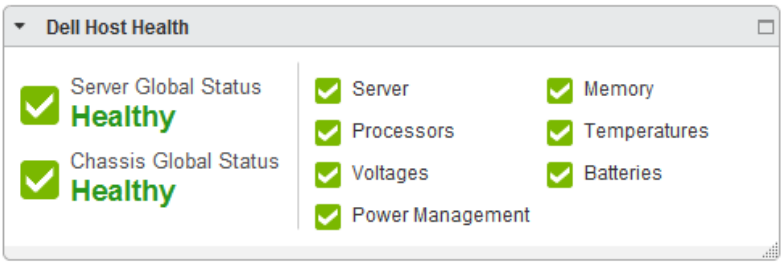


Figure 22 Dell Host Health for a host associated with a chassis

Conclusion

Starting with version 2.1, the Dell OpenManage Integration for VMware vCenter presents information about the chassis to the VMware vSphere web client. By configuring a chassis profile as shown, an administrator can view high-level inventory and health information for their associated chassis, and then drill down to additional information as required, without the logging in to the CMC web console.